

10/761,924
Examiner Christine Mui
Group Art Unit: 1797

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IN THE SPECIFICATION:

Please replace paragraphs [0008] and [0018] of the specification with the following amended paragraphs, respectively:

[0008] The invention further allows using very sophisticated materials for the membrane since the membrane is formed flat and may be made from a sheet material. It is, in particular, not necessary to make a tube, like necessary for the known carrier gas operated devices. The flat membrane may comprise at least two layers, wherein a first layer is a porous carrier layer and the second layer comprises a material permeable for the volatile component, wherein the first layer and the second layer are attached to each other to build a multi layer structure, and wherein the first layer is the inner side of the flat membrane. The porous carrier layer may comprise porous ~~Teflon (PTFE)~~ TEFLON® (polytetrafluoroethylene) and the material permeable for the volatile component may be made from a silicon polymer. The first layer may have a thickness in the range from 0.2 to 3.0 mm, and the second layer may have a thickness in the range from 0.01 to 2.0 mm.

[0018] FIG. 1 shows a probe device for measuring the concentration of ethanol in an aqueous solution, comprising a probe body 1 with an opening 2, wherein the probe body 1 is made essentially of three elements 14, 15, 16. The opening 2 is tightly covered by a flat membrane 3, wherein said membrane 3 is permeable for the volatile component. Within the probe body 1 a sensor 4 for measuring the concentration of the volatile component is arranged. The sensor 4 comprises a commercially available semiconductor solid state detector on SnO_x basis. In the inset showing a detailed view of the sensor 4, it is seen that the sensor 4 further comprises a sensor housing 12 with an opening, which constitutes the measuring area 5 or sensitive surface 5 (both terms are used synonymous) of the sensor 4, and electrical connectors 13, which are contacted to an electronic evaluation unit via connection leads (not shown). The measuring area 5 is located in a first measuring space 6a. The inner side of the flat membrane 3 is part of a second measuring space 6b. The first measuring space 6a and the second measuring space 6b are connected by a measuring aperture 11. The first measuring

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space 6a is further connected to a carrier gas exhaust 8 and the second measuring space 6b is connected to a carrier gas supply 7. Not shown is that the carrier gas supply 7 is connected to a carrier gas source via means for controlling gas flow rates. In the inset showing a detailed view of the membrane 3, it can be seen that the membrane 3 comprises two layers, wherein a first layer is a porous ~~PTFE~~ polytetrafluoroethylene carrier layer 9 and a second layer 10 comprises a silicon polymer material permeable for ethanol, wherein both layers 9, 10 are attached to each other to build a multi layer structure, wherein the carrier layer 9 is at the inner side of the membrane 3.